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乌兰兽：蹄齿科一新属

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关键词 内蒙古 早渐新世 乌兰兽

内 容 提 要

威氏乌兰兽（*Ulania wilsoni*）为哺乳动物纲奇蹄目蹄齿科（Hyracodontidae）中的一个新属、种。本文将它与其相近的蹄齿科成员进行比较，发现了该科动物系统发育的某种趋势。

1975年6—7月间，作者在参与内蒙古区测队一分队野外地质填图工作时，在沙拉木伦地区额尔登敖包的第14剖面上相当于乌兰戈楚组底部灰绿色砂岩中采到将在本文报道的有关化石哺乳动物的材料，经多方对比研究，认为这些材料代表了蹄齿科中的一个新的成员，称之为威氏乌兰兽。

一、标本记述

奇蹄目 Perissodactyla Owen, 1785

犀超科 Rhinocerotoidea Gill, 1872

蹄齿科 Hyracodontidae Cope, 1879

威氏乌兰兽新属、新种 *Ulania wilsoni* gen et sp. nov.

（图版 I, II）

正型标本 中国科学院古脊椎动物与古人类研究所标本编号： V8922，均为同一个体。计有：

1. V8922-1: 一残破上颌骨，具左 DP^4 及 M^{1-3}；
2. V8922-2: 一段左下颌骨，具右 I_1，左 I_{1-3}，DP_{2-4}，M_{1-2}；
3. V8922-3: 一段右下颌骨，具 DP_{3-4} 和 M_{1-3}；
4. V8922-4: 一左 P^3；
5. V8922-5: 一右 M^1；
6. V8922-6: 一右 M^2；
7. V8922-7: 一左第4掌骨；
8. V8922-8: 一右第4掌骨；
9. V8922-9: 一左桡腕骨；
10. V8922-10: 一左第4腕骨；

11. V8922-11：左第 3 指骨之第 1 指节骨；
12. V8922-12：左第 3 指骨之第 2 指节骨；
13. V8922-13：左第 3 指骨之第 3 指节骨；
14. V8922-14：左第 4 指骨之第 1 指节骨；
15. V8922-15：左第 4 指骨之第 2 指节骨；
16. V8922-16：左第 4 指骨之第 3 指节骨；
17. V8922-17：右第 4 指骨之第 1 指节骨；
18. V9822-18：右第 4 指骨之第 2 指节骨；
19. V8922-19：右第 4 指骨之第 3 指节骨；
20. V8922-20：右第 3 指骨之第 1 指节骨；
21. V9822-21：右第 3 指骨之第 2 指节骨；
22. V8922-22：右第 3 指骨之第 3 指节骨；
23. V9822-23：右第 2 指骨之第 1 指节骨；
24. V9822-24：右第 2 指骨之第 2 指节骨；
25. V9822-25. 右第 2 指骨之第 3 指节骨；
26—28. V8922-26,27,28：籽骨 3 枚。

属的主要特征　中等大小；M^{1-2} 长 62mm，冠高指数：0.86；齿式 $\frac{\text{——}.3}{3.1.3.3}$；$M^1$ 和 M^2 外壁平直，后尖很长，横脊强烈后倾；P_2 退化；P_2 与 P_3 之间有较大的虚位；P_4 臼齿化。

种的主要特征　同属。

名称来源　属名"乌兰"（Ulan），蒙语，意红色，示其采自乌兰戈楚组（Ulangochu Formation）。种名"威氏"（wilsoni），赠威尔逊博士(Dr. John A. Wilson)，他对奇蹄类的研究作出了卓越贡献。

描述　DP^4：前内侧破损，磨蚀严重，前附尖小，前肋比较突出；后脊稍向后倾斜(表 1)。

P^3：外脊顶缘平直，原脊长，后脊短，前附尖弱；前尖处外肋突出。次尖顶部与原尖分离，但基部仍与原尖连在一起。前侧和后侧齿带明显，但两者在原尖处被阻断；外齿带微弱。

M^1：齿冠高；外脊平直；后尖长；前后脊向后强烈倾斜；前齿带明显；无内侧、外侧和后侧齿带。

M^2：齿冠比 M^1 更高；前尖外肋突出；外脊平直；原脊，特别是后脊强烈向后倾斜；前齿带明显。

M^3：（未磨蚀）前附尖更加弱小；前肋突出；后脊明显短小；后尖短；外壁后部向唇侧翘起；前齿带宽大；后齿带也比较明显。

DP_2：个体明显较 DP_3 小；前尖低矮，成柱状，与下原夹和下后尖相距较大。

DP_3：下前尖分两叉，一叉指向正前方，一叉指向舌侧，并与下原脊相连；牙齿内侧平直。

表1 牙齿测量(单位: 毫米)

Table 1 Measurements of teeth (in mm)

Ulania wilsoni (V8922)		*Hyracodon primus* (Wilson and Shiebout, 1984)
DP^4 (长/宽) (L./W.)	12.6/—	—
P^3	11.5/14.3	10.6/15.0
M^1	19.5/18.9	—
M^2	25.0/22.0	16.9/18.5
M^3	20.6/20.5	14.4/18.1
M^{1-3}	57.8	47.7?
M^3: (crown-height index)	0.86	0.65—0.88 (*Hyracodon*)
DP_2	8.9/5.4	(below: TMM 40203—21) —
DP_3	14.0/7.7	—
DP_4	13.7/8.5	—
DP_{2-4}	31.0	—
P_2	6.8/4.4	10.8/7.4
P_3	10.4/7.0	12.5/8.9
P_4	13.6/8.8	12.6/9.9
P_{2-4}	36.8	—
M_1	15.5/10.0	13.7/10.0
M_2	18.8/12.2	15.8/10.2?
M_3	24.0/10.9	—
M_{1-3}	63.7	—
虚位	27.4(C_1—P_4)	—
(diastema)	5.6(P_2—P_4)	—

DP_4: 牙齿基本分为两叶;下前尖不十分突出。

P_2: 颊齿中最小的一个;与P_3之间有明显的虚位;下原脊浑圆,稍向后倾斜;下后脊后端向舌侧弯曲;内侧齿带微弱,但较明显。

P_3: 下原尖突出;下原脊的唇面一端并不与下原尖顶端相连;下前脊前端向舌面一侧弯曲;下后脊直,与下次脊成直角相连;由于下后脊向舌侧位移,使牙齿外侧壁呈阶梯状。

P_4: 下原脊顶部平直;下前脊突出并与下原脊平行;下后脊直,与宽大平直的下次脊成锐角相交;前齿带微弱。

M_1: 下三角座较短;下前脊较窄;外壁中间基部有一小段齿带。

M_2: 下前脊明显比 M_1 的宽,外齿壁和前内侧齿带微弱。

M_3: 下前脊更为发育。

左桡骨: 近端面呈方形,前后侧抬起,中间凹陷;近端外侧上端有一与中间腕骨相关节的小关节面;远端具两个关节面,与第 2 和第 3 腕骨相关节;内侧近端和远端具与中间腕骨相关节的两个关节面,其中近端的一个关节面比较短,远端一个关节面从前端至后端呈孤状。

左第三腕骨: 近端面凸隆,曲向后下方达掌侧;与中间腕骨相关节的内侧面呈方形;与尺腕骨相关节的外侧面稍小,呈三角形;内侧有两个与第四腕骨相关节的面,其中远端

的一个面宽大并向下外侧弯曲与远端面连在一起；下面一个小关节面，在骨体后部粗大结节的内侧，此二面之间为一宽大的凹陷区（表 2）。

表 2 腕骨测量（单位：毫米）

Table 2 Measurements of the carpal bones (in mm)

Ulania wilsoni (V8922)					
	宽 (Tr.)	高 (H.)	高/宽×100 (H.)/(Tr.)×100	厚 (T.)	厚/宽×100 (T.)/(Tr.)×100
桡腕骨 (Os carpi radiale)	16.5	23.3	141	20.1	122
第四腕骨 (IV carpus)	17.4	22.0	126	22.3	128

左第四掌骨：（近端破损）远端关节面具一中央嵴棱将此面分为内、外两个髁，内髁较宽，外髁较窄（表 3）。

表 3 掌骨测量（单位：毫米）

Table 3 Measurements of the metacarpal bones (in mm)

Ulania wilsoni (V8922)	
	远端宽 (D. Tr.)
第四掌骨 (Mc IV) 左 Left	16.4
右 Right	16.5

右第二指骨：第 1 指节骨破损严重，仅存部分骨体及关节面（表 4）

第 2 指节骨：近端关节面椭圆形，中央隆起明显；远端关节面自前向后弯曲达掌部；骨体背侧的侧副韧带结节不明显。

第 3 指节骨：近端面宽大；背沟极不明显；伸腱突比较明显；远缘顺滑，无缺刻。

右第三指骨：第 1 指节骨近端宽大，掌侧底缘中部稍向上弯曲。远端关节面未弯曲向上，关节面不大；其掌侧远籽骨中韧带附着嵴不明显；指浅屈肌腱的压迹比较清楚；髁比较突出。

第 2 指节骨：近端面椭圆形；远端面大，向背侧和掌侧曲伸，几达背侧面和掌侧面，此面尚具一浅沟。

第 3 指节骨：近端面略呈方形，中间隆起十分微弱；近端左右侧的两个角十分突出；背侧无侧副韧带压迹和背沟，但具若干小的滋养孔；掌侧靠近端处，掌侧沟和掌孔十分明显；中央的屈面也很清楚；中部具隆起的半月状嵴；掌侧也具若干滋养孔。远缘中央有缺刻。

右第四指骨：第 1 指节骨：近端关节面较第三指骨之第 1 指节骨的关节面稍小；远端关节面向上弯曲；背侧的侧副韧带结节比较突出；掌侧指浅屈肌腱的压迹（内外侧各一）明显。

第 2 指节骨：近端呈椭圆形；掌侧的髁比较明显。远端面向背侧翻转可达骨体之背侧。

第 3 指节骨：近端的背沟很明显；背侧骨体上具若干滋养孔；掌侧可见两个大的掌

表4 指骨测量(单位：毫米)

Table 4 Measurements of the phalanges (in mm)

Ulania wilsoni (V8922)		第二指骨 (Mc II)	第三指骨 (Mc III)	第四指骨 (Mc IV)
指总长 (Total of pha.)		53.6	55.3	53.1
第一指骨 (Ph I)	长 (PhI L.)	23.1	26.7	22.8
	长/总长×100 (PhI L.)/(Total of Pha)×100	43	48	43
	近端宽 (PTr.)	—	16.6	14.5
	近端宽/长 (PTr.)/(PhI L.)	—	62	64
	远端宽 (DTr.)	—	14.4	13.4
	远端宽/长 (DTr.)/(PhI L.)	—	54	59
第二指骨 (Ph II)	长 (PhI L.)	16.6	15.6	16.0
	长/总长×100 (PhI L.)/(Total of Pha.)×100	31	28	30
	近端宽 (PTr.)	12.0	13.5	12.7
	近端宽/长 (PTr.)/(PhI L.)	72	87	79
	远端宽 (DTr.)	11.6	12.9	11.0
	远端宽/长 (DTr.)/(PhI L.)	70	83	69
第三指骨 (Ph III)	长 (PhI L.)	18.3	19.4	18.7
	长/总长×100 (PhI L.)/(Totalof pha.)×100	34	35	35
	近端宽 (PTr.)	—	19.2	?18.7
	近端宽/长 (PTr.)/(PhI L.)	—	99	—
	远端宽 (DTr.)	—	17.0	14.6?
	远端宽/长 (DTr.)/(PhI L.)	—	88	—

孔；掌侧沟不明显；半月状嵴比较平缓。

讨论 蹄齿科动物与 V 8922 号标本在个体和形态上较为接近的属有以下几个：*Epitriplopus*, *Hyracodon*, *Triplopus* 以及 *Ardynia*。其它几个属与它相去甚远，本文不一一赘述。但以上几个比较相近的属与 V8922 号标本存在着属间差异。

首先，让我们看一下 V8922 号标本与 *Epitriplopus* 的区别：1）两者齿式不一：V8922 号标本无 P_1，P_2 和 P_3 之间有一段明显的虚位，而 *Epitriplopus* 具 P_1，P_2 和 P_3 之间无虚位；2）V8922 号标本的个体较大；3）*Epitriplopus* 的 M^1 和 M^2 有明显的反前刺 (anticrochet)，而 V8922 号标本的 M^{1-2} 无反前刺；4）*Epitriplopus* 的 M^3 无后尖

的痕迹，而 V8922 号标本的 M^3 的后尖明显，因此 M^3 的外脊相当长；5）V8922 号标本的 M^3 的冠高指数较大(0.86)，而 *Epitriplopus* 的相应数字为 0.76，即前者齿冠相对要高一些。

另一个发现于北美的属 *Hyracodon*（早渐新世或？早中新世)的个体与 V8922 号标本接近，两者 M^3 的冠高指数也比较接近(后者为 0.65—0.88)，但两者也存在着明显的差别：1）V8922 号标本的 M^{1-2} 无小刺，而 *Hyracodon* 的 M^{1-3} 具明显的小刺；2）V8922 号标本臼齿的横脊更加倾斜；3）V8922 号标本臼齿的外齿壁非常平直，无后尖外肋之痕迹，而 *Hyracodon*（以 *H. primus*, TMM 40203-63 为例）的 M^1 和 M^2 的后尖外肋虽不突出但很明显；4）*Hyracodon* 的 P_2 和 P_3 之间没有虚位；5）*Hyracodon* 的 P_2 相当发育，而 V8922 号标本的 P_2 已经退化得很小。

就上臼齿的形态而言，V8922 号标本最接近于 *Triplopus*（= *Caenolophus*）*obliquus*，如：两者的横脊都十分向后倾斜，都无小刺、反前刺等。但两者的差别也是显而易见的：1）V8922 号标本的个体大得多；2）V8922 号标本的齿冠相对地要高得多，(*Triplopus obliquus* 的冠高指数为 0.61)；如果我们将 V8922 号标本与其它材料比较多的 *Triplopus* 属的成员做比较，还会发现：3）*Triplopus* 的牙齿没有退化，而 V8922 号标本至少 P_1 和 P_2 已经或正在退化之中；4）V8922 号标本的 P_4 已完全臼齿化，而 *Triplopus* 的前臼齿未臼齿化或半臼齿化。

虽然来自蒙古早渐新世地层的 *Ardynia* 的个体（尤其是下颊齿）与 V8922 号标本接近，但两者也具如下不同：1）V8922 号标本的 M^3 前后脊相距很远，而且互相平行，而 *Ardynia* 的 M^3 的原脊和后脊斜交在一起；前者的前附尖明显，而后者几乎看不到前附尖；2）*Ardynia* 的 M^3 的齿冠相对更高（冠高指数达 1.10)；3）*Ardynia* 的 P_2 之后无虚位。

二、小　结

1. 鉴于上述比较研究，乌兰兽（*Ulania wilsoni*）当为一新属；
2. 乌兰兽的直接祖先类型极可能是 *Triplopus*（= *Caenolophus*）*obliquus*；
3. 此类奇蹄动物的牙齿的进化趋势有三：
   1）齿冠高度逐渐增加，反映在 M^3 冠高指数的不断加大。
   2）前臼齿逐渐退化。
   3）犬齿变小，有门齿化的趋势。

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参 考 文 献

Matthew W. D. and W. Granger, 1925: New Ungulates from the Ardyn Obo Formation of Mongolia. *Amer. Mus. Novit.*, 195, 1—12.

————, 1925: New Mammals from the Sharamurun Eocene of Mongolia. *Amer. Mus. Novit.*, 196, 1—11.

Radinsky L. B., 1966: The Family of the Rhinocerotoidea (Mammalia, Perissodactyla). *Jour. Mammal.*, 47(4), 631—637.

————, 1967: A Review of the Rhinocerotoid Family Hyracodontidae (Perissodactyla). *Bull. Amer. Mus.*

Nat. Hist., 136(1), 1—43.
Wilson J. A. and J. A. Shiebout, 1984: Early Tertiary Vertebrate Fauna. Trans-Pecos Texas: Ceratomorpha Less Amynodontidae. *The Pearce-Sellards Series*, 39, 1—47.

A NEW GENUS, *ULANIA*, OF HYRACODONTIDAE (PERISSODACTYLA, MAMMALIA)

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Key words Nei Mongol; Early Oligocene; *Ulania*

Summary

Ulania wilsoni is a new genus and species of Hyracodontidae. Through Comparising among genera in that family, some trends of phylogenetic evolution in that family are suggested.

Fossils from Ulangochu Formation were first found during the summer field season of 1975 when we investigated the Paleogene in Shara Murun area, Nei Mongol (i.e. Inner Mongolia).

Systematic description

Perissodactyla Owen, 1785

Rhinocerotoidea Gill, 1872

Hyracodontidae Cope, 1879

***Ulania wilsoni* gen. et sp. nov.**

Type IVPP No. V8922, all of the individual, including:

1. V8922-1: a broken maxilla with left DP^4 and M^{1-3}. 2. V8922-2: a dentary bene with right I_1, left I_{1-3}, DP_{2-4} and M_{1-2}. 3. V8922-3: right dentary bone with DP_4 and M_{1-3}. 4. V8922-4: left P^3. 5. V8922-5: a right M^1. 6. V8922-6: a right M^3. 7. V8922-7: a left fourth metacarpal bone. 8. V8922-8: a right fourth metacarpal bone. 9. V8922-9: a left radial carpal bone. 10. V8922-10: a left fourth carpal bone. 11. V8922-11: a first phalanx of the left third phalange. 12. V8922-12: a second phalanx of the left third phalange. 13. V8922-13: third phalanx of the left third phalange. 14. V8922-14: a first phalanx of the left fourth phalange. 15. V8922-15: a second phalanx of the left fourth phalnage. 16. V8922-16: a third phalanx of the left fourth phalange. 17. V8922-17: a first phalanx of the right fourth phalange. 18. V8922-18: a second phalanx of the right fourth phalnage. 19. V8922-19: a third phalanx of the right phalange. 20. V8922-20: a first phalanx of the right third phalange. 21. V8922-21: a second phalanx of the right third phalange. 22. V8922-22: a third phalanx of the right third phalange. 23. V8922-23: a first phalanx of the right second phalange. 24. V8922-24: a second phalanx of the right second phalange. 25. V8922-25: a third phalanx of the right second phalange. 26—28. V8922-26, V8922-27 and V8922-28: three sesamoids.

Generic diagnosis medium in size; M^{1-2}: 62 mm long; crown-height index: 0.86;

dental formula: $\frac{-\cdot 3}{3\cdot 1\cdot 3\cdot 3}$;　M^1 and M^2: ectoloph flat and straight (posteriorly); long dias tema between C_1 and P_2; transverse lophs strongly backward; P_2 reduced; having diastema between P_2 and P_3; P_4 molariform.

Specific diagnosis same as the genus.

Etymology *Ulan(ia)*, the generic name means red color, indicating that the material collected from Ulangochu Formation. The specific name is for Dr. John A Wilson who contributed greatly to the studies of Perissodactyla.

Descriptions DP^4: Anterior rib projective; metaloph obliques slightly backward.

P^3: Ectoloph flat and straight; protoloph loriger than metaloph; anterior rib projective; the apex of the hypocone is separated from protocone, but connected togather at the base; precingulum and postcingulum very clear, but interrupted at the base of protocone; ectocingulum weak (see Table 1—4).

M^1: Crown relatively high; ectoloph flat and straight; metacone long; pretoloph and ectoloph strongly backward; precingulum projective; no inner, outer and posterior cingulum.

M^2: Crown higher than that of M^1; paracone rib projective; ectoloph flat and straight; protoloph and, especially, metaloph strongly backward; precingulum projective.

M^3: Parastyle much smaller; anterior rib projective; metaloph very short; metacone short and clear; posterior part of the ectoloph raises labially; precingulum wide; postcingulum relatively clear.

DP_2: Much smaller than DP_3 in size; paraconid low and pillar-formed; the distance relatively long between paraconid and protoconid.

DP_3: Paraconid branched in two twigs. One of them points lingually and connects with protoconid; inner side of the tooth flat and straight.

DP_4: Essencially bi-lobed; paraconid not much projective.

P_2: Smallest in size among the cheek teeth; a clear diastema between P_2 and P_3; protolophid slightly backward; posterior part of the metalophid curves ligually; inner cingulum weak and clear.

P_3: Protoconid projective; the labial end of the protolophid not connects with the apex of protoconid; the anterior part of paralophid curves lingually; metalophid is straight and connects with hypolophid forming a right angle; ectolophid stair-shaped.

P_4: The apex of protolophid flat and straight; the paralophid is projective and paralells protolophid; metalophid is straight and connectes with ectolophid in the form of acute angle; precingulum weak.

M_1: Trigonid relatively short; precingulum relatively narrow; a short piece of cingulum at the base in the middle part of the ectoloph.

M_2: Width of the precingulum wider than that of M_1; cingula weak on the outer and anterior wall.

M_3: precingulum more developed.

Left radial carpal bone: The proximal facet is square and convex both in outer and posterior sides and concave in the middle part; a small facet for second and third carpal bones on the outer side of the proximal end; two facets for intermediate carpal bone on the inner side of proximal and distal ends. One of them is shorter on the proximal end, and the other one is arc-formed from anterior to posterior end.

Left third carpal bone: The proximal facet is convex and curves back-and-downward reaching the dorsal shaft; the mediate for intermediate carpal bone square. The lateral facet for the ulnar carpal bone relatively small and triangle-formed. The mediate surface has two facets for the articulation with the fourth carpal bone between which it is excavated and rough. One of them is big and curves laterally connecting with the distal surface. And the other one at the mediate side of the big volar turbercle.

Left fourth metacarpal bone: The distal extremity is composed of two condyles which are separated by a sagittal ridge; the mediate condyle is slightly larger.

Right second phalange: The first phalanx (badly damaged).

The second phalanx: The oval facet for distal end of the second metacarpal bone is convex in the mediate surface; the facet of distal extremity curves from anterior to posterior reaching to the volar shaft; the eminence for lateral ligment not clear.

The third phalanx: The proximal surface is big; dorsal groove not clear; extensor process is relatively clear; distal border smooth and no notch on it.

Right third phalange: The first phalanx: The proximal articular surface wide and big; the mediate part of the distal border of the volar side curves upward; distal articular surface does not curve upward; ridges for attachment of middle distal sesamoid ligment is not strong; condyle is relatively projective.

The second phalanx: The proximal articular surface is oval; distal articular surface is big and curves almost reaching to the distal and volar shaft. This surface has a shallow groove in the mediate part.

The third phalanx: The proximal articular surface nearly square, the mediate convex of it very weak;two angles on the proximal end very projective; depression for collateral ligment and dorsal groove can not be seen; there are several nutrient foramens on the dorsal surface; volar groove, volar foramen and flexor surface very clear; semiulnar crest is convex in the mediate part; volar surface also has several nutrient foramens; a notch on the distal border.

Right fourth phalange: The first phalanx: The proximal articular surface is smaller than that of the first phalanx of the right third phalange; distal articular surface curves upward; eminence for the collateral ligment relatively projective; imprints tendon of superficial flexor very clear.

The second phalanx: The proximal articular surface oval; condyles relatively clear; distal articular surface turns upward reaching to the dorsal shaft.

The third phalanx: The dorsal groove very clear; several nutrient foramens on the dorsal shaft; two big volar foramens can be seen; volar groove not clear; semiulnar crest relatively gentle.

Discussion *Ulania* shows resemblance to sevrar genera of Hyracodontidae, such as *Epitriplopus, Hyracodon, Triplopus* and *Ardynia*. However, they differ in:

First, between V8922 and *Epitriplopus*: 1) different dental formula: the former has no P_1, having diastema between P_2 and P_3, but there is a P_1 in the latter; 2) V8922 larger in size; 3) *Epitriplopus* has a distinct anticrochet in M^1 andM^2, but absent in V8922; 4) *Epitriplopous* without metacone in M^3, but V8922 with a distinct and long metacone; 5) the crown-height index of V8922 is 0.86, while the corresponding figure is 0.76 in *Epitriplopus*.

The other American genus, *Hyracodon* (Early Oligocene or ?Early Miocene), is similar to V8922 both in size and crown-height index (*Hyracondon*: 0.65—0.88), but they differ in:

1) V8922: M^1 and M^2 without crista, while *Hyracodon* has very distinct crista in M^1 and M^2; 2) the transverse lophs in V8922 more oblique than those in *Hyracodon;* 3) ectoloph in V8922 (posterior part) flat and straight and no trace of metacone rib; while the metacone rib in M^1 of *Hyracodon* (Taking *Hyracodon primus*, TMM. 40203 for example) very weak; 4) *Hyracodon* has no diastema between P_2 and P_3; 5) the P_2 of *Hyracodon* developed, while much reduced in V8922.

The form of the upper molars of V8922 resembles closely to that of *Triplopus* (=*Caenolophus*) *obliquus* such as in strongly backward inclined tranverse lophs, no crista and anticrochet etc. But they differ in: 1) V8922 much larger in size; 2) crown-height index: only 0.61 in *Triplopus obliquus*. In comparison with other materials of *Triplopus*, more differences are found between them: 3) the teeth of *Triplopus* are not reduced, while V8922 lost P_1, and P_2 reduced; 4) P_4 molariform in V8922, while P_4 of *Triplopus* non-molariform or submolariform.

Ardynia from Mogolian Early Oligocen differ from V8922 in: 1) M^3 of V8922: protoloph paralells with metaloph; in *Ardynia* protoloph intersects metaloph at acute angle; 2) crown of M^3 relatively higher. Crown-height index of *Ardynia* is 1.10; and 3) *Ardynia* also has no diastema between P_2 and P_3.

Conclusions

1. *Ulania wilsoni* should be a new genus and new species.

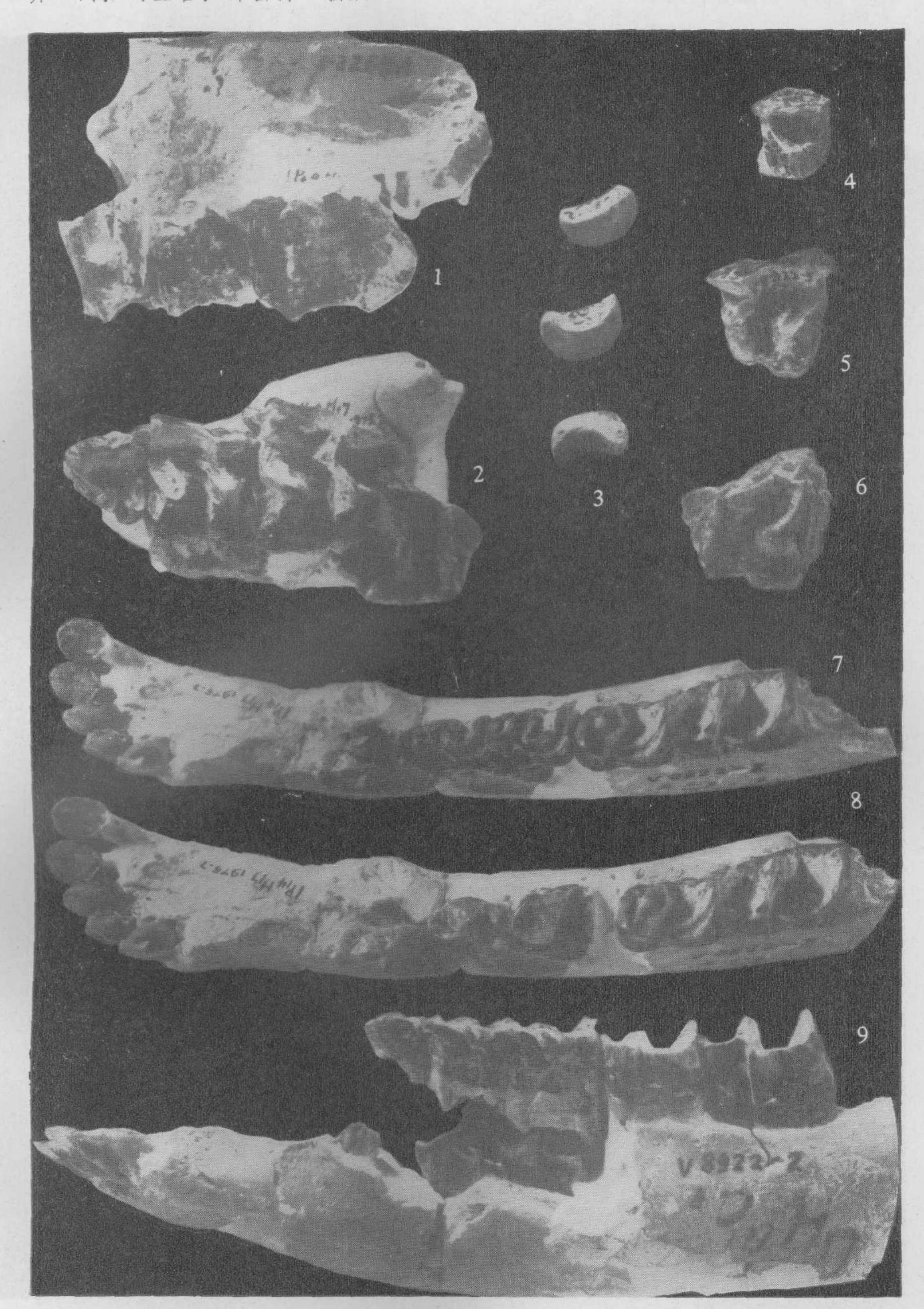
2. The Middle Eocene hyracondontid *Triplopus* (*Caenolophus*) *obliquus* should be a suitable ancestor for *Ulania wilsoni*.

3. Known morphological changes in the dentition of hyracodontid show three trends:

1) Crown height index increased gradually;

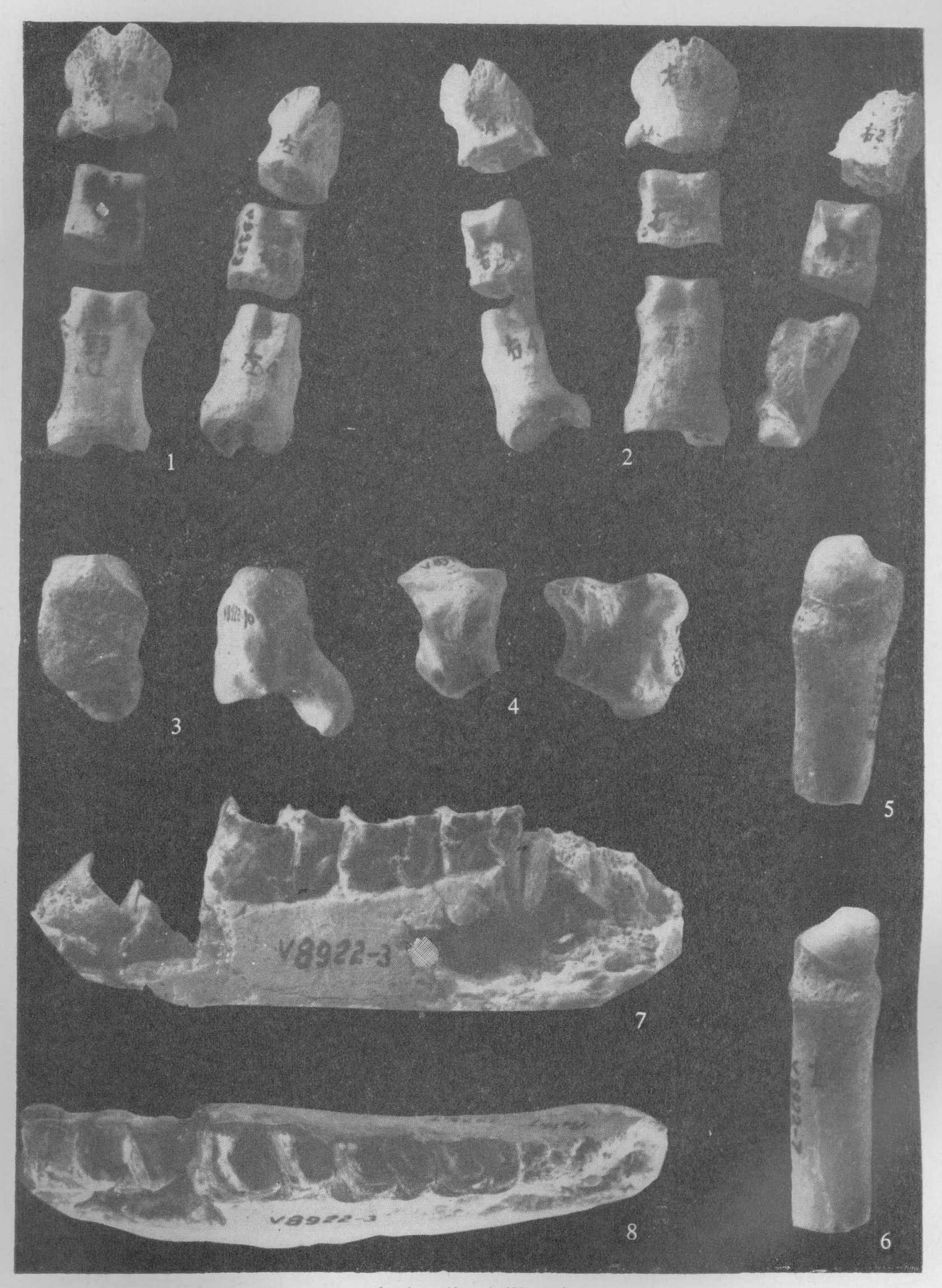
2) Premolars lost or reduced, and P_4 submolariform to molariform;

3) Canine reduced and became progressively incisoriform.



Ulania wilsoni (V8922)

1—2. V8922-1: P^4-M^3, 外侧视及冠视 (lateral and crown views); 3. V8922-26, 27, 28: 三枚籽骨 (three sesamoids); 4. V8922-4: 一左 P^3, 冠视 (a left P^3, crown view); 5. V8922-5: 一右 M^1, 冠视 (a right M^1, crown view); 6. V8922-6: 一右 M^3, 冠视 (a left M^3, crown view); 7-9. V8922-2: 一左下颌骨, 具右 I_1, 左 I_{1-3}, DP_{2-4}, M_{1-2} 7. 冠视具 DP_{2-4} 及 M_{1-2}; 8. 冠视, 具 P_{3-4} 及 M_{1-2}; 9. 外侧视 (a left dentary with right I_1, left I_{1-3}, DP_{2-4}, P_{2-4}, and M_{1-2}. 7. crown view with DP_{2-4} and M_{1-2}; 8. crown view with P_{3-4} and M_{1-2}; and 9. lateral view). 全部×1(all×1)



Ulania wilsoni (V8922)

1. V8922-11-16: 左第 3 指骨，背侧视 (a third left phalanges, dorsal view); 2. V8922-17—25: 右第 4 指骨，背侧视 (a fourth right phalanges, dorsal view); 3. V8922-10: 一左第 4 腕骨，背侧视 (a fourth carpal bone, dorsal and lateral views); 4. V8922-9: 一左桡腕骨，背侧视及内侧视 (a left radial carpal bone, dorsal and medial views); 5. V 8922-8: 一右第四掌骨，背侧视 (a right fourth metacarpal bone, dorsal view); 6. V 8922-7: 一左第四掌骨，背侧视 (a left fourth metacarpal bone, dorsal view); 7-8. V 8922-3: 一段右下颌骨，具 DP_{3-4}，和 M_{1-3}，外侧视及冠视 (a right dentary with DP_{3-4} and M_{1-3}, lateral, and crown views) 全部×1 (all ×1)